

CLAIMS:

1. A method of encoding a graphical message (220, 221) based on a key sequence as an encoded sequence of information units, comprising for each pixel of the graphical message (220, 221), said pixel having a normalized intensity \underline{I} :

determining (511) a total rotation value α representing a rotation of a

5 polarization of a cell in a liquid crystal display resulting in a pixel with substantially the intensity \underline{I} ,

choosing (512) an element α_2 from the key sequence, the element representing an arbitrary rotation of a polarization of a cell in a liquid crystal display,

10 computing (513) a first message value α_1 as a difference between the rotation value α and the element α_2 , and

outputting (515) an element of the encoded sequence based on the first message value α_1 .

2. The method of claim 1, further comprising computing an intermediate value \underline{x} as $\underline{x} = \arccos(|\sqrt{(\underline{I})}|)$ and determining the value α as either \underline{x} or $\pi - \underline{x}$.

3. The method of claim 1, in which the normalized intensity \underline{I} corresponds to an intensity of a first color component of the pixel in question, and further comprising

20 repeating (521, 522, 523) the determining, choosing and computing steps for a second rotation value corresponding to a normalized intensity of a second color component of said pixel to obtain a second message value,

repeating (531, 532, 533) the determining, choosing and computing steps for a third rotation value corresponding to a normalized intensity of a third color component of said pixel to obtain a third message value, and

25 outputting (515, 525, 535) the element of the encoded sequence further based on the second and third message values.

4. The method of claim 1, in which the intensity I is an element of a finite set with discrete values, the method further comprising choosing an offset Δ and adding (514) the offset Δ to at least one of: the first message value α_1 and the element α_2 .
- 5 5. A computer program product arranged for causing a processor to execute the method of claim 1.
6. A device (201) for reconstructing a graphical message based on a key sequence, comprising
- 10 receiving means (702) for receiving an encoded sequence of information units, a first liquid crystal display (701) arranged for displaying the sequence of information units by rotating the polarization of respective cells in a first liquid crystal layer (L1) by an amount indicated by respective elements in the encoded sequence,
- 15 a second liquid crystal display (211), different from the first liquid crystal display (701), arranged for rotating the polarization of respective cells in a second liquid crystal layer (L2) by an amount indicated by respective elements in the key sequence, in which the first (701) and second liquid crystal display (211) are arranged to be superimposed on each other.
- 20 7. The device (201) as claimed in claim 6, in which the first liquid crystal display comprises a reflective liquid crystal display.
8. The device (201) as claimed in claim 6, in which the second liquid crystal display is embodied in a unit (210) physically separable from the first liquid crystal display (701), and provided with a memory (212) for storing the key sequence.
- 25 9. The device (201) of claim 6, comprising means for receiving input representing a set of coordinates from a user, and means (702) for transmitting the received input to a server (200).
- 30 10. The device (201) of claim 9, in which the input is received as pressure on a particular spot of the first liquid crystal display (701), the set of coordinates corresponding to the particular spot.